

Substitute for form 1449A-B/PTO

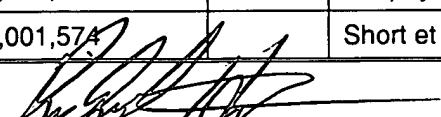
INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

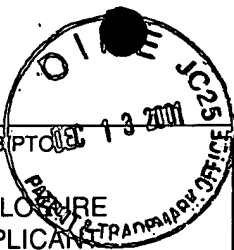
Complete if Known

Application Number **09/920,452**
Filing Date **July 31, 2001**
First Named Inventor **Sun Ai Raillard**
Group Art Unit **Unassigned**
Examiner Name **Unassigned**
Attorney Docket Number **02-107410US**

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, lines, Where Relevant, Passages or Relevant Figures Appeal
		Number	Kind Code (if known)			
RA	AA	5,512,463		Stemmer	04-30-1996	435/91.2
	AB	5,514,588		Varadaraj	05-07-1996	282
	AC	5,605,793		Stemmer	02-25-1997	6
	AD	5,763,239		Short et al.	06-09-1998	172.1
	AE	5,789,228		Lam et al.	08-04-1998	209
	AF	5,811,238		Stemmer et al.	09-22-1998	6
	AG	5,814,473		Warren et al.	09-29-1998	15
	AH	5,824,469		Horwitz et al.	10-20-1998	6
	AI	5,830,696		Short	11-03-1998	89.1
	AJ	5,830,721		Stemmer et al.	11-03-1998	172.1
	AK	5,834,252		Stemmer et al.	11-10-1998	91.1
	AL	5,837,458		Minushull et al.	11-17-1998	6
	AM	5,866,363		Pieczenik	02-02-1999	89.1
	AN	5,876,997		Kretz	03-02-1999	435/196
	AO	5,925,749		Mathur, et al.	07-20-1999	538/231
	AP	5,928,905		Stemmer, et al.	07-27-1999	435/91.1
	AQ	5,939,250		Short, Jay M.	08-17-1999	4
	AR	5,939,300		Robertson, et al.	08-17-1999	192
	AS	5,942,430		Robertson, et al.	08-24-1999	197
	AT	5,948,666		Callen, et al.	09-07-1999	194
	AU	5,958,672		Short, Jay M.	09-28-1999	4
	AV	5,958,751		Murphy, et al.	09-28-1999	208
	AW	5,962,258		Mathur, et al.	10-05-1999	89.1
	AX	5,962,283		Warren et al.	10-05-1999	128
	AY	5,965,408		Short, Jay M.	10-12-1999	91.1
	AZ	5,985,646		Murphy, et al.	11-16-1999	282.3
RA	BA	6,001,574		Short et al.	12-14-1999	435/6
Examiner Signature					Date Considered	4/17/03

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RV	BB	6,004,788		Short	12-21-1999	435/183
	BC	6,030,779		Short	02-29-2000	6
	BD	6,054,267		Short	04-25-2000	6
	BE	6,057,103		Short	05-02-2000	6
	BF	6,096,548		Stemmer	08-01-2000	440
	BG	6,117,679		Stemmer	09-12-2000	440
	BH	6,132,970		Stemmer	10-17-2000	6
	BI	6,165,793		Stemmer	12-26-2000	440
	BJ	6,168,919		Short	01-02-2001	6
	BK	6,171,820		Short	01-09-2001	69.1
	BL	6,174,673		Short, et al.	01-16-2001	6
	BM	6,180,406		Stemmer	01-30-2001	440
RV	BN	6,238,884		Short et al.	05-29-2001	435/69.1

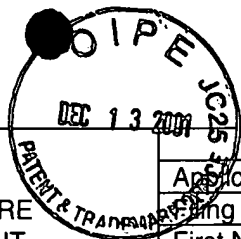
FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
RV	BO	WO	97/07205		Novo Nordisk A/S	02-27-1997		
	BP	WO	97/20078		Affymax Technologies	06-05-1997		
	BQ	WO	97/25410		Novo Nordisk A/S	07-17-1997		
	BR	WO	97/35957		Maxygen, Inc.	10-02-1997		
	BS	WO	97/35966		Maxygen, Inc.	10-02-1997		
	BT	WO	97/44361		Recombinant Biocatalysis Inc.	11-27-1997		
	BU	WO	97/48416		Recombinant Biocatalysis, Inc.	12-24-1997		
	BV	WO	97/48717		Recombinant Biocatalysis Inc	12-24-1997		
	BW	WO	97/48794		Recombinant Biocatalysis Inc	12-24-1997		
RV	BX	WO	98/00526		Recombinant	01-08-1998		

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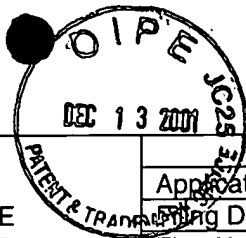
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					Biocatalysis Inc		
RV	BY	WO	98/01581		Recombinant Biocatalysis Inc	01-15-1998	
	BZ	WO	98/13485		Maxygen, Inc.	04-02-1998	
	CA	WO	98/13487		Maxygen, Inc.	04-02-1998	
	CB	WO	98/24799		Diversa Corp.	06-11-1998	
	CC	WO	98/27230		Maxygen, Inc.	06-25-1998	
	CD	WO	98/28416		Novo Nordisk A/S	07-02-1998	
	CE	WO	98/31837		Maxygen, Inc.	07-23-1998	
	CF	WO	98/36080		The Dow Chemical Company	08-20-1998	
	CG	WO	98/41622		Novo Nordisk A/S	09-24-1998	
	CH	WO	98/41623		Novo Nordisk A/S	09-24-1998	
RV	CI	WO	98/41653		Novo Nordisk A/S	09-24-1998	
	CJ	WO	98/42832		California Institute of Technology	10-01-1998	
	CK	WO	98/48034		Diversa Corp.	10-29-1998	
	CL	WO	98/58085		Diversa Corp.	12-23-1998	
	CM	WO	99/07837		Diversa Corp.	02-19-1999	
	CN	WO	99/08539		Diversa Corp.	02-25-1999	
	CO	WO	99/10472		Diversa Corp.	03-04-1999	
	CP	WO	99/10539		Diversa Corp.	03-04-1999	
	CQ	WO	99/19518		Diversa Corp.	04-22-1999	
	CR	EP	0911396A2		Maxygen, Inc.	04-28-1999	
RV	CS	WO	99/21979		Maxygen, Inc.	05-06-1999	
	CT	EP	0911396A3		Maxygen, Inc.	05-06-1999	
	CU	WO	99/23107		Maxygen, Inc.	05-14-1999	
	CV	WO	99/23236		Diversa Corp.	05-14-1999	
RV	CW	WO	99/29902		California Institute of Technology et al.	06-17-1999	

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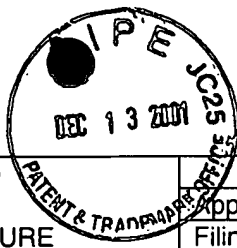
RH	CX	EP	0934999A1		Maxygen, Inc.	08-11-1999		
I	CY	WO	99/41368		Maxygen, Inc.	08-19-1999		
	CZ	WO	99/41369		Maxygen, Inc.	08-19-1999		
	DA	WO	99/41383		Maxygen, Inc.	08-19-1999		
	DB	WO	99/41402		Maxygen, Inc.	08-19-1999		
	DC	WO	99/45154		Diversa Corp.	09-10-1999		
RH	DD	WO	99/57128		Maxygen, Inc.	11-11-1999		
I	DE	WO	99/65927		Maxygen, Inc.	12-23-1999		
	DF	WO	00/42560		Maxygen, Inc.	07-20-2000		
	DG	WO	00/42561		Maxygen, Inc.	07-20-2000		
	DH	WO	00/53744		Diversa Corporation	09-14-2000		
RH	DI	WO	00/58517		Diversa Corporation	10-05-2000		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
RH	DJ	Chang, C., et al. (1999) "Evolution of a cytokine using DNA family shuffling." <u>Nature Biotechnology</u> 17:793-797.	
I	DK	Christians, F.C. et al., (1999) "Directed evolution of thymidine kinase for AZT phosphorylation using DNA family shuffling." <u>Nature Biotechnology</u> 17:259-264.	
X	DL	Coco et al., (2001) "DNA shuffling method for generating highly recombined genes and evolved enzymes" <u>Nature Biotechnology</u> vol. 19 pp. 354-359	
o	DM	Crameri et al., (1993) "10(20)-Fold aptamer library amplification without gel purification," <u>Nuc. Acids Res.</u> 21(18):4410.	
	DN	Crameri, A. & Stemmer W.P.C. (1995) "Combinatorial multiple cassette mutagenesis creates all the permutations of mutant and wildtype cassettes." <u>Biotechniques</u> 18:194-195.	
	DO	Crameri, A. et al. (1996) "Improved green fluorescent protein by molecular evolution using DNA shuffling." <u>Nature Biotechnology</u> 14:315-319.	
	DP	Crameri, A. et al. (1996) "Construction and evolution of antibody-phage libraries by DNA shuffling." <u>Nature Medicine</u> 2:100-103.	
RH	DQ	Crameri, A. et al., (1997) "Molecular evolution of an arsenate detoxification pathway by DNA shuffling." <u>Nature Biotechnology</u> 15:436-438	

Examiner Signature		Date Considered	4/17/03
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	Attorney Docket Number	02-107410US

RV	DR	Cramer, A. et al., (1998) "DNA shuffling of a family of genes from diverse species accelerates directed evolution." <i>Nature</i> 391:288-291.	
	DS	Gates, C.M. et al., (1996) "Affinity selective isolation of ligands from peptide libraries through display on a lac repressor 'headpiece dimer'." <i>Journal of Molecular Biology</i> 255:373-386.	
	DT	Minshull, J., Stemmer, W.P.C. (1999) "Protein evolution by molecular breeding." <i>Current Opinion in Chemical Biology</i> 3:284-290.	
	DU	Ness, J. et al., (1999) "DNA shuffling of subgenomic sequences of subtilisin." <i>Nature Biotechnology</i> 17:893-896.	
	DV	Patten, P.A. et al., (1997) "Application of DNA Shuffling to Pharmaceuticals and Vaccines." <i>Current Opinion in Biotechnology</i> 8:724-733.	
	DW	Pelletier, Joelle N., (2001) "A Rachitt for our toolbox" <i>Nature Biotechnology</i> vol. 19, p. 314-315	
	DX	Stemmer, W.P.C. (1994) "DNA Shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution." <i>PNAS</i> 91:10751	
	DY	Stemmer, W.P.C. (1994) "Rapid evolution of a protein in vitro by DNA shuffling." <i>Nature</i> 370:389-391.	
	DZ	Stemmer, W.P.C. (1995) "The Evolution of Molecular Computation." <i>Science</i> 270:1510	
	EA	Stemmer, W.P.C. (1995) "Searching Sequence Space." <i>Bio/Technology</i> 13:549-553.	
	EB	Stemmer, W.P.C. (1996) "Sexual PCR and Assembly PCR." In: <i>The Encyclopedia of Molecular Biology</i> . VCH Publishers, New York. pp. 447-457.	
	EC	Stemmer, W.P.C. & Soong, N.W. (1999) "Molecular breeding of viruses for targeting and other clinical properties." <i>Tumor Targeting</i> 4:59-62.	
RV	ED	Zhang, J. et al., (1997) "Directed evolution of an effective fucosidase from a galactosidase by DNA shuffling and screening." <i>Proceedings of the National Academy of Sciences, USA</i> 94:4504-4509.	

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